## INORGANIC DATA VALIDATION REPORT

To: U.S. Environmental Protection Agency Region 9

Validated by: Diane Quigley, Weston Solutions, Inc.

Report Date: August 11, 2015

Project/Site: Gold King Mine Emergency Response

Laboratory No: 680-115416-1

This memo presents the inorganic data validation report for the data obtained during the field activities for the above referenced work assignment. The purpose of this review is to provide a Stage 2A validation of the following samples collected on August 8, 2015, and analyzed by TestAmerica Laboratories, Inc. located in Savannah, GA:

Field Sample Numbers	Laboratory ID	Analyses/Methods
SJLP-080815-11	680-115416-1	TAL Metals plus Mo by EPA 200.7 and
		200.8
SJFP-080815-11	680-115416-2	Mercury by EPA 245.1
SJHB-080815-11	680-115416-3	Hardness (calculation) by SM2340B
		TSS by SM2540D
SJSR-080815-11	680-115416-4	TDS by SM2540C
		Alkalinity by SM2320B
10_25_20150807-RS	680-115416-5	pH by SM4500H+B

Mo = Molybdenum

SM = Standard Methods for the Evaluation of Water & Wastewater

TAL = Target Analyte List

TDS = Total Dissolved Solids

TSS = Total Suspended Solids

Data validation was conducted in accordance with the EPA National Functional Guidelines for Inorganic Superfund Analyses, August 2014 (NFG); Test Methods for Evaluating Solid Wastes, SW-846, 3rd Edition and Updates; and other applicable EPA methods.

Stage 2A validation was performed on the sample results. The data were evaluated based on the following parameters:

- \* Data Completeness
  Holding Times, Sample Preservation and Receipt
- \* Laboratory Blanks
- NA Field Blanks
  - Matrix Spike/Matrix Spike Duplicates
- \* Laboratory Duplicate Samples
- \* Laboratory Control Samples (Blank Spikes)
- \* Total vs. Dissolved Metals Results Evaluation
- NA Field Duplicates
- \* Serial Dilution
- NA Sample Dilutions and Detection Limits
- All criteria were met for this parameter
- NA Not applicable

## **Data Completeness**

The Level 2 data package was complete and included a case narrative, sample results, batch quality control (QC) results, QC association summary, chain-of-custody forms, and a sample receipt condition form. Raw data is not required for a Level 2 data package.

### Holding Times, Sample Preservation and Receipt

Surface water samples were analyzed for pH two days after sampling. Results for pH were flagged by the lab with an "HF" which indicates the samples were analyzed out of the 15 minute field holding time. The pH results for water samples were estimated (J) since they were analyzed past the recommended holding time. All other holding times were met.

The samples were received within the recommended  $\leq 6\Box C$  NFG QC limit. No shipping or receiving problems were noted.

### Laboratory Blanks

The method blanks (MB) were analyzed at the required frequency. No contaminants were found in these blanks.

### Field Blanks

No field blanks were submitted with these samples.

### Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) analyses were performed (on sample SJLP-080815-11) for all analyses except alkalinity, TSS, and TDS.

Spike recoveries met the 75-125 percent recovery (%R) metals criteria and the 20% Relative Percent Difference (RPD) criteria from the NFG except for the following:

- Several analyte spike recoveries (Al, Ba, Ca, Fe, Mg, K and Na) for sample SJLP-080815-11 were outside QC limits in the MS and MSD. Since the laboratory qualified these results with a "4" indicating the parent sample concentrations were greater than four times the spiked amount, no qualifications are necessary.
- Antimony (38/38%) and Zinc (-/67%) recoveries were below QC limits for sample SJLP-080815-11 in the MS and MSD. The positive antimony and zinc results were estimated J- in all samples due to potential low bias. Quantitation limits for non-detected results were flagged "UJ" as estimated.

## **Laboratory Duplicate Samples**

Total alkalinity, pH and TSS laboratory duplicate analyses were performed on sample SJFP-080815-11. A laboratory duplicate was not presented for TDS analysis.

Duplicate precision criteria were met for laboratory duplicate sample results greater than five times the reporting limit (RL). RPDs were less than 20% for aqueous samples. For sample results less than five times the RL, the absolute difference between the laboratory duplicate and the original sample was less than the RL.

### Laboratory Control Samples (Blank Spikes)

At least one laboratory control sample (LCS) analysis was analyzed per QC batch and, for some analyses, a duplicate LCS (LCSD) was also analyzed. All LCS analyte recoveries were within 70-130%R NFG control limit for metals and mercury and within the 20% RPD NFG control limit for metals and mercury. Recoveries were within the lab control limits for wet chemistry parameters.

## Total vs. Dissolved Metals Results Evaluation

Total Metals results were greater than the Dissolved Metals results and/or within the 10%D QC limits for all metals analytes except for the following:

Sample ID	Analyte	Total Conc.	Dissolved Conc.	%D	Qualifier
SJSR-080815-11	Mo	1.2 μg/L	1.6 μg/L	33%	J

Sample results were qualified as indicated above.

## Field Duplicates

No field duplicates were submitted with this data set.

## Sample Dilution and Detection Limits

The laboratory correctly "J" flagged results less than the reporting limits. The data validator retained the J qualifier unless the analyte was qualified as non-detected for blank contamination.

Raw data were not provided or evaluated for this Level 2 package to verify results and analytical dilution.

## DATA QUALIFIER DEFINITIONS

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality.

- J The associated numerical value is an estimated quantity because the Quality Control criteria were not met.
- J- The associated numerical value is estimated with a low bias because the Quality Control criteria were not met.
- UJ The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound was not detected.
- U The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

# ATTACHMENT RESULTS SUMMARY SHEETS WITH QUALIFIERS

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Client: Weston Solutions, Inc.

Project/Site: Gold King Mine - Region 9

TestAmerica Job ID: 680-115416-1

Lab Sample ID: 680-115416-1

08/10/15 09:56 08/10/15 16:52

08/10/15 09:56 08/10/15 16:52

08/10/15 09:56 08/10/15 16:52

08/10/15 09:56 08/10/15 16:52

Matrix: Water

Client Sample ID: SJLP-080815-11

Date Collected: 08/08/15 15:32 Date Received: 08/10/15 07:45

Iron, Dissolved

Potassium, Dissolved

Magnesium, Dissolved

Sodium, Dissolved

Method: 200.7 Rev 4.4 - Metals	s (ICP)							
Analyte	Result Qualifie	r RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	28000	200	24	ug/L	ATTENDED OF THE PARTY OF THE PA	08/10/15 09:56	08/10/15 15:22	1
Calcium	64000	500	25	ug/L		08/10/15 09:56	08/10/15 15:22	1
Iron	29000	50	17	ug/L	*2	08/10/15 09:56	08/10/15 15:22	1
Magnesium	12000	500	33	ug/L		08/10/15 09:56	08/10/15 15:22	1
Potassium	8100	1000	17	ug/L		08/10/15 09:56	08/10/15 15:22	1
Sodium	21000	1000	480	ug/L		08/10/15 09:56	08/10/15 15:22	1
Method: 200.7 Rev 4.4 - Metals	s (ICP) - Dissolved							
Analyte	Result Qualifie	r RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	24 U	200	24	ug/L		08/10/15 09:56	08/10/15 16:52	1
Calcium, Dissolved	47000	500	25	ug/L		08/10/15 09:56	08/10/15 16:52	1

50

1000

500

1000

17 ug/L

17 ug/L

33 ug/L

480 ug/L

18 J

2400

6100

19000

Method: 200.8 - Metals (ICP/N Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.40 UF1 UT	1.0	0.40	ug/L	energia esta esta esta esta esta esta esta est	08/10/15 09:56	08/11/15 09:29	
Arsenic	11	1.0	0.37	ug/L		08/10/15 09:56	08/11/15 09:29	
Barium	490	2.0	0.14	ug/L		08/10/15 09:56	08/11/15 09:29	
Beryllium	1.4	0.40	0.15	ug/L		08/10/15 09:56	08/11/15 09:29	1
Cadmium	0.35	0.10	0.043	ug/L		08/10/15 09:56	08/11/15 09:29	1
Chromium	14	2.0	1.0	ug/L		08/10/15 09:56	08/11/15 09:29	4
Cobalt	9.9	0.40	0.12	ug/L		08/10/15 09:56	08/11/15 09:29	. 1
Copper	42	1.0	0.50	ug/L		08/10/15 09:56	08/11/15 09:29	1
Lead	150	0.30	0.060	ug/L		08/10/15 09:56	08/11/15 09:29	1
Manganese	570	2.5	1.2	ug/L		08/10/15 09:56	08/11/15 09:29	1
Nickel	13	1.0	0.40	ug/L		08/10/15 09:56	08/11/15 09:29	1
Selenium	0.74 J	2.0	0.58	ug/L		08/10/15 09:56	08/11/15 09:29	1
Silver	0.96 J	1.0	0.10	ug/L		08/10/15 09:56	08/11/15 09:29	1
Thallium	0.30	0.20	0.10	ug/L		08/10/15 09:56	08/11/15 09:29	1
Vanadium	34	1.0	0.30	ug/L		08/10/15 09:56	08/11/15 09:29	1
Zinc	130 F1 <i>J</i> -	20	2.8	ug/L		08/10/15 09:56	08/11/15 09:29	1
Molybdenum	2.4	1.0	0.45	ug/L		08/10/15 09:56	08/11/15 09:29	. 1

Analyte	Result	Qual	ifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony, Dissolved	0.40	U	7 <b>.</b>	1.0	0.40	ug/L	Negerical Acres	08/10/15 09:56	08/11/15 11:11	1
Arsenic, Dissolved	0.37	U		1.0	0.37	ug/L		08/10/15 09:56	08/11/15 11:11	1
Barium, Dissolved	61			2.0	0.14	ug/L		08/10/15 09:56	08/11/15 11:11	1
Beryllium, Dissolved	0.15	U	W	0.40	0.15	ug/L		08/10/15 09:56	08/11/15 11:11	1
Cadmium, Dissolved	0.043	U		0.10	0.043	ug/L		08/10/15 09:56	08/11/15 11:11	. 1
Chromium, Dissolved	1.0	U		2.0	1.0	ug/L		08/10/15 09:56	08/11/15 11:11	1
Cobalt, Dissolved	0.12	J		0.40	0.12	ug/L		08/10/15 09:56	08/11/15 11:11	1
Copper, Dissolved	1.5			1.0	0.50	ug/L		08/10/15 09:56	08/11/15 11:11	1
Lead, Dissolved	0.094	J		0.30	0.060	ug/L		08/10/15 09:56	08/11/15 11:11	1
Manganese, Dissolved	5.8			2.5	1.2	ug/L		08/10/15 09:56	08/11/15 11:11	1
Molybdenum, Dissolved	1.6			1.0	0.45	ug/L		08/10/15 09:56	08/11/15 11:11	1
Nickel, Dissolved	1.1			1.0	0.40	ug/L	. *	08/10/15 09:56	08/11/15 11:11	1

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Client: Weston Solutions, Inc.

Project/Site: Gold King Mine - Region 9

TestAmerica Job ID: 680-115416-1

Client Sample ID: SJLP-080815-11

Date Collected: 08/08/15 15:32 Date Received: 08/10/15 07:45 Lab Sample ID: 680-115416-1

Matrix: Water

Method: 200.8 - Meta	- Dissolv	- Dissolved (Continued)				200			
Analyte		Result	Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	hampiodes and desired the contract of the cont	0.58	Ū	2.0	0.58 ug/L	нетакан орене	08/10/15 09:56	08/11/15 11:11	1
Silver, Dissolved		0.10	U	1.0	0.10 ug/L		08/10/15 09:56	08/11/15 11:11	1
Thallium, Dissolved		0.10	U	0.20	0.10 ug/L	-6	08/10/15 09:56	08/11/15 11:11	1
Vanadium, Dissolved		0.35	J	1.0	0.30 ug/L		08/10/15 09:56	08/11/15 11:11	1
Zinc, Dissolved		2.8	UUJ	20	2.8 ug/L		08/10/15 09:56	08/11/15 11:11	1
and the second s	* a)			* * * * * * * * * * * * * * * * * * * *					

Method: 2340B-2011 - Total Hardness (as CaCO3) by calculation

Analyte Result Qualifier RL RL Unit D Prepared Analyzed Dil Fac

Total Hardness 210 3.3 3.3 mg/L 08/10/15 15:22 1

	Method: 245.1	- Mercury (CVA)	A)	1								
OF STREET	Analyte		Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
200000000000000000000000000000000000000	Mercury		0.080	U	0.20	0.080	ug/L	distribute alapses . Militari	08/10/15 09:17	08/10/15 15:21	1	

-	Method: 245.1 - Mercury (CVA	A) - Dissolv	red								
-	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
- Address	Mercury, Dissolved	0.080	U	0.20	0.080	ug/L	SHARE	08/10/15 12:21	08/10/15 16:28	1	

General Chemistry			- k-						
Analyte	Result	Qualifier .	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	8.05	HF J	meritamente de la companya del companya de la companya del companya de la companya del la companya de la compan		SU	and a second		08/10/15 16:07	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	86	opening ground and grown as more and a second	5.0	5.0	mg/L	-		08/10/15 16:07	1
Total Suspended Solids	1300		20	20	mg/L			08/10/15 09:56	1
Total Dissolved Solids	250		10	10	mg/L			08/10/15 11:46	. 1

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Client: Weston Solutions, Inc.

Project/Site: Gold King Mine - Region 9

TestAmerica Job ID: 680-115416-1

Lab Sample ID: 680-115416-2

Matrix: Water

Client Sample ID: SJFP-080815-11

Date Collected: 08/08/15 18:40 Date Received: 08/10/15 07:45

Method: 200.7 Rev 4.4 - Metals	(ICP)		and the second of the second o							
Analyte		Qualifier	RL	MDL	Unit	1.5	D	Prepared	Analyzed	Dil Fac
Aluminum	22000		200	24	ug/L		'wayyo	08/10/15 09:56	08/10/15 15:33	1
Calcium	60000		500	25	ug/L	¥		08/10/15 09:56	08/10/15 15:33	1
ron	25000		50	17	ug/L			08/10/15 09:56	08/10/15 15:33	1
Magnesium	10000		500	33	ug/L			08/10/15 09:56	08/10/15 15:33	1
Potassium	7000		1000	17	10.00			08/10/15 09:56	08/10/15 15:33	1
Sodium	22000		1000	480				08/10/15 09:56	08/10/15 15:33	
Method: 200.7 Rev 4.4 - Metals	(ICP) - Dis	solved								
Analyte		Qualifier	RL	MDL	Unit		D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	24	Ū	200	24	ug/L	ementario entre entre e	intiper	08/10/15 09:56	08/10/15 16:55	***************************************
Calcium, Dissolved	50000		500	25	ug/L			08/10/15 09:56	08/10/15 16:55	
ron, Dissolved		U	50		ug/L	3,3		08/10/15 09:56	08/10/15 16:55	
Potassium, Dissolved	2400		1000	17	177			08/10/15 09:56	08/10/15 16:55	1
Magnesium, Dissolved	6400		500	33				08/10/15 09:56		. 1
Sodium, Dissolved	20000		1000		ug/L		ě	08/10/15 09:56		1
Method: 200.8 - Metals (ICP/MS	ă.									
Analyte		Qualifier	RL.	MDL	Unit		D	Prepared	Analyzed	Dil Fac
Antimony	0.59	JJ	1.0	0.40	ug/L	electric control of the first that	Siemine:	08/10/15 09:56	08/11/15 09:50	1
Arsenic	11		1.0	0.37	ug/L			08/10/15 09:56	08/11/15 09:50	L 1
3arium	260		2.0	0.14	ug/L			08/10/15 09:56	08/11/15 09:50	1
3eryllium	0.97		0.40	0.15	ug/L			08/10/15 09:56	08/11/15 09:50	. 1
Cadmium	0.39		0.10	0.043	ug/L		N <sub>2</sub>	08/10/15 09:56	08/11/15 09:50	1
Chromium	9.9		2.0	1.0	ug/L			08/10/15 09:56	08/11/15 09:50	1
Cobalt	6.1		0.40	0.12	ug/L			08/10/15 09:56	08/11/15 09:50	1
Sopper	46		1.0	0.50	ug/L			08/10/15 09:56	08/11/15 09:50	1
_ead	200		0.30	0.060	ug/L			08/10/15 09:56	08/11/15 09:50	1
Manganese	380		2.5	1.2	ug/L			08/10/15 09:56	08/11/15 09:50	1
Nickel	8.9		1.0	0.40	ug/L			08/10/15 09:56	08/11/15 09:50	1
Selenium	0.98	J	2.0		ug/L			08/10/15 09:56	08/11/15 09:50	1
Silver	1.4		1.0	0.10				08/10/15 09:56	08/11/15 09:50	1
Thallium	0.23		0.20	0.10	ug/L			08/10/15 09:56	08/11/15 09:50	1
/anadium	27		1.0	0.30	ug/L				08/11/15 09:50	1
Zinc	130	1	20	2.8					08/11/15 09:50	1
Molybdenum	3.2		1.0	0.45	ug/L			08/10/15 09:56	08/11/15 09:50	1
Method: 200.8 - Metals (ICP/MS	) - Dissolv	red		alson son						
Analyte		Qualifier	RL	MDL	Unit		D	Prepared	Analyzed	Dil Fac
Antimony, Dissolved	0.40	UUJ	1.0	0.40	ug/L		- serioli-	08/10/15 09:56	08/11/15 11:15	1
Arsenic, Dissolved	0.37		1.0	0.37	ug/L			08/10/15 09:56	08/11/15 11:15	. 1
Barium, Dissolved	66		2.0	0.14	ug/L			08/10/15 09:56	08/11/15 11:15	1
Beryllium, Dissolved	0.15	U	0.40	0.15	ug/L			08/10/15 09:56	08/11/15 11:15	1
Cadmium, Dissolved	0.043	U	0.10	0.043	ug/L			08/10/15 09:56	08/11/15 11:15	
Chromium, Dissolved	1.0	U	2.0		ug/L			08/10/15 09:56	08/11/15 11:15	1
Cobalt, Dissolved	0.13		0.40		ug/L				08/11/15 11:15	1
Copper, Dissolved	1.5	. 4.41	1.0		ug/L	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			08/11/15 11:15	1
Lead, Dissolved	0.060	U	0.30	0.060					08/11/15 11:15	1
Manganese, Dissolved	4.6		2.5		ug/L				08/11/15 11:15	1
The second secon	7.0		4.6	26 2 20	and the				00444544	

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08/10/15 09:56 08/11/15 11:15

08/10/15 09:56 08/11/15 11:15

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0.45 ug/L

0.40 ug/L

1.7

1.2

Molybdenum, Dissolved

Nickel, Dissolved

Client: Weston Solutions, Inc.

Project/Site: Gold King Mine - Region 9

TestAmerica Job ID: 680-115416-1

Lab Sample ID: 680-115416-2

Matrix: Water

Client Sample ID: SJFP-080815-11

Date Collected: 08/08/15 18:40 Date Received: 08/10/15 07:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	0.58	Ü	2.0	0.58	ug/L	and punishing and a	08/10/15 09:56	08/11/15 11:15	1
Silver, Dissolved	0.10	U	1.0	0.10	ug/L		08/10/15 09:56	08/11/15 11:15	1
Thallium, Dissolved	0.10	U	0.20	0.10	ug/L		08/10/15 09:56	08/11/15 11:15	1
Vanadium, Dissolved	0.30	U	1.0	0.30	ug/L		08/10/15 09:56	08/11/15 11:15	1
Zinc, Dissolved	2.8	0 11 2	20	2.8	ug/L		08/10/15 09:56	08/11/15 11:15	1

thing the property of the last	Method: 2340B-2011 - Total Hardness (a	s CaCO3) b	y calculation							
commons	Analyte Resul	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac	
descent	Total Hardness 190		3.3	3.3	mg/L	- Josephin		08/10/15 15:33	1	
See										

Method: 245.1 - Mercury (CVA)	A)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.080	U	0.20	0.080	ug/L	essonit:	08/10/15 09:17	08/10/15 15:30	1

harawaan	Method: 245.1 - Mercury (CVA	A) - Dissolv	red								
donatrial	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Heisensen	Mercury, Dissolved	0.080	U	0.20	0.080	ug/L	100,000	08/10/15 12:21	08/10/15 16:31	1	

Science Co.	General Chemistry	A second									
	Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac	
-	pH	8.06	HF J	- Andread of the Angres of the	militaria manggana anggania managitis	SU	enegoniesesenie, voerzie,	elemente de la companya de la compa	08/10/15 16:14	1	
	Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac	
(A)	Alkalinity	84	- Pade and the Principle of State and State an	5.0	5,0	mg/L	decimalistic remain	an kilologia di nilatara solitari bermitete e e e e e e e e e e e e e e e e e	08/10/15 16:14	1	
this paper play	Total Suspended Solids	680		20	20	mg/L			08/11/15 08:37	1	
Systemical	<b>Total Dissolved Solids</b>	290		10	10	mg/L			08/10/15 11:46	1	

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Client: Weston Solutions, Inc.

Project/Site: Gold King Mine - Region 9

TestAmerica Job ID: 680-115416-1

Lab Sample ID: 680-115416-3

Matrix: Water

Client Sample ID: SJHB-080815-11

Date Collected: 08/08/15 19:10 Date Received: 08/10/15 07:45

Analyte	Result	Qualifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	30000	200	24	ug/L	seed Seem	08/10/15 09:56	08/10/15 15:37	1
Calcium	77000	500	25	ug/L		08/10/15 09:56	08/10/15 15:37	1
Iron	36000	50	17	ug/L		08/10/15 09:56	08/10/15 15:37	1
Magnesium	13000	500	33	ug/L		08/10/15 09:56	08/10/15 15:37	1
Potassium	8700	1000	17	ug/L		08/10/15 09:56	08/10/15 15:37	1
Sodium	23000	1000	480	ug/L		08/10/15 09:56	08/10/15 15:37	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	24	U	200	24	ug/L	manufacture - 50000	08/10/15 09:56	08/10/15 16:59	And the second second
Calcium, Dissolved	54000		500	25	ug/L		08/10/15 09:56	08/10/15 16:59	1
Iron, Dissolved	17	U	50	17	ug/L		08/10/15 09:56	08/10/15 16:59	1
Potassium, Dissolved	2500		1000	17	ug/L		08/10/15 09:56	08/10/15 16:59	1
Magnesium, Dissolved	6900		500	33	ug/L		08/10/15 09:56	08/10/15 16:59	. 4
Sodium, Dissolved	22000		1000	480	ug/L		08/10/15 09:56	08/10/15 16:59	1

Method: 200.8	- Metals (ICP/MS)	sult	Qualifier	RL	MDL	Unit	C	Prepared	Analyzed	Dil Fac
Antimony		0.51	JJF	1,0	0.40	ug/L		08/10/15 09:56	08/11/15 09:54	1
Arsenic		14		1.0	0.37	ug/L		08/10/15 09:56	08/11/15 09:54	1
Barium		570		2.0	0.14	ug/L		08/10/15 09:56	08/11/15 09:54	. 1
Beryllium		1.8		0.40	0.15	ug/L		08/10/15 09:56	08/11/15 09:54	1
Cadmium		0.51		0.10	0.043	ug/L		08/10/15 09:56	08/11/15 09:54	1
Chromium		16		2.0	1.0	ug/L		08/10/15 09:56	08/11/15 09:54	1
Cobalt		13		0.40	0.12	ug/L		08/10/15 09:56	08/11/15 09:54	1
Copper		61		1.0	0.50	ug/L		08/10/15 09:56	08/11/15 09:54	. 1
Lead		250		0.30	0.060			08/10/15 09:56	08/11/15 09:54	- K
Manganese	entropy was a superior of the	940		2.5	1.2	ug/L		08/10/15 09:56	08/11/15 09:54	4
Nickel	en e	16		1.0	0.40	ug/L		08/10/15 09:56	08/11/15 09:54	. 1
Selenium	and the second of the second of	1.5	J	2.0	0.58	ug/L		08/10/15 09:56	08/11/15 09:54	1
Silver		1.6		1.0	0.10	ug/L		08/10/15 09:56	08/11/15 09:54	
Thallium		0.35	V.	0.20	0.10	ug/L		08/10/15 09:56	08/11/15 09:54	1
Vanadium		41		1.0	0.30	ug/L	4.1	08/10/15 09:56	08/11/15 09:54	1
Zinc		170	<b>ブー</b>	20	2.8	ug/L		08/10/15 09:56	08/11/15 09:54	1
Molybdenum		3.0		1.0	0.45	ug/L		08/10/15 09:56	08/11/15 09:54	1

Method: 200.8 - Metals (ICP/MS) -									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony, Dissolved	0.40	עט ט	1.0	0.40	ug/L	electronics	08/10/15 09:56	08/11/15 11:20	1
Arsenic, Dissolved	0.37		1.0	0.37	ug/L		08/10/15 09:56	08/11/15 11:20	1
Barium, Dissolved	67		2.0	0.14	ug/L		08/10/15 09:56	08/11/15 11:20	1
Beryllium, Dissolved	0.15	U	0.40	0.15	ug/L		08/10/15 09:56	08/11/15 11:20	1
Cadmium, Dissolved	0.043	U	0.10	0.043	ug/L		08/10/15 09:56	08/11/15 11:20	1
Chromium, Dissolved	1.0	U	2.0	1.0	ug/L		08/10/15 09:56	08/11/15 11:20	1
Cobalt, Dissolved	0.12	U	0.40	0.12	ug/L		08/10/15 09:56	08/11/15 11:20	1
Copper, Dissolved	1.7		1.0	0.50	ug/L		08/10/15 09:56	08/11/15 11:20	1
Lead, Dissolved	0.060	U	0.30	0.060	ug/L		08/10/15 09:56	08/11/15 11:20	1
Manganese, Dissolved	1.2	J	2.5	1.2	ug/L		08/10/15 09:56	08/11/15 11:20	1
Molybdenum, Dissolved	1.8		1.0	0.45	ug/L		08/10/15 09:56	08/11/15 11:20	, a
Nickel, Dissolved	1.1		1.0	0.40	ug/L		08/10/15 09:56	08/11/15 11:20	- 1

TestAmerica Savannah

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PQ-11-15 8/11/2015

Client: Weston Solutions, Inc.

Project/Site: Gold King Mine - Region 9

TestAmerica Job ID: 680-115416-1

Lab Sample ID: 680-115416-3

Matrix: Water

Client Sample ID: SJHB-080815-11

Date Collected: 08/08/15 19:10

Date Received: 08/10/15 07:45

Method: 200.8 - Metals (ICP/ Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	0.58	Ü	2.0	0.58	ug/L	merconnection	08/10/15 09:56	08/11/15 11:20	1
Silver, Dissolved	0.10	U	1.0	0.10	ug/L		08/10/15 09:56	08/11/15 11:20	1
Thallium, Dissolved	0.10	U	0.20	0.10	ug/L		08/10/15 09:56	08/11/15 11:20	1
Vanadium, Dissolved	0.34	J	1.0	0.30	ug/L		08/10/15 09:56	08/11/15 11:20	1
Zinc, Dissolved	2.8	0 05	20	2.8	ug/L		08/10/15 09:56	08/11/15 11:20	1
Method: 2340B-2011 - Total	Hardness (as	CaCO3) b	y calculation	1					ng.
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	250	- minerare solven and object of the analysis o	3.3	3.3	mg/L	enerodicenter ' venido.'.	- sincilente en manuel monte en manuel di consideration del consid	08/10/15 15:37	1
Method: 245.1 - Mercury (CV Analyte		Qualifier	RL.	MDL	Unit	a	Prepared	Analyzed	Dil Fac
Mercury	0.080	destination of the second of t	0.20	0.080	- continues and a second second	occinence summ	08/10/15 09:17	08/10/15 15:33	
Method: 245.1 - Mercury (CV	'AA) - Dissolv	/ed							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	0.080	U	0.20	0.080	ug/L	andreasures ; pears.	08/10/15 12:21	08/10/15 16:35	
General Chemistry							$\phi_0$		
Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.99	HF J	- and the second second second second		SU			08/10/15 16:32	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	82		5.0	5.0	mg/L	HANNESCO . HANNE		08/10/15 16:32	,
Total Suspended Solids	2900		33	33	mg/L			08/11/15 08:37	1
Total Dissolved Solids	290		10	40	mg/L			08/10/15 11:46	4

TestAmerica Savannah

Client: Weston Solutions, Inc.

Project/Site: Gold King Mine - Region 9

TestAmerica Job ID: 680-115416-1

Lab Sample ID: 680-115416-4

Matrix: Water

Client Sample ID: SJSR-080815-11

Date Collected: 08/08/15 19:34 Date Received: 08/10/15 07:45

Analyte	Result Q	ualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	42000	Approximate the second	200	24	ug/L	Spine.	08/10/15 09 56	08/10/15 15:41	1
Calcium	74000		500	25	ug/L		08/10/15 09:56	08/10/15 15:41	- 1
Iron	36000		50	17	ug/L		08/10/15 09:56	08/10/15 15:41	1
Magnesium	16000		500	33	ug/L		08/10/15 09:56	08/10/15 15:41	1
Potassium	9500		1000	17	ug/L		08/10/15 09:56	08/10/15 15:41	1
Sodium	28000		1000	480	ug/L		08/10/15 09:56	08/10/15 15:41	1

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	610	200	24	ug/L	wanaanamana (galabi)	08/10/15 09:56	08/10/15 17:03	1
Calcium, Dissolved	50000	500	25	ug/L		08/10/15 09:56	08/10/15 17:03	1
Iron, Dissolved	360	50	17	ug/L		08/10/15 09:56	08/10/15 17:03	1
Potassium, Dissolved	2600	1000	17	ug/L		08/10/15 09:56	08/10/15 17:03	1
Magnesium, Dissolved	6400	500	33	ug/L		08/10/15 09:56	08/10/15 17:03	1
Sodium, Dissolved	25000	1000	480	ug/L		08/10/15 09:56	08/10/15 17:03	1

Susse									
Method: 200.8 - Met		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.40	ט ט ד	1.0	0.40	ug/L	epinonement epino	08/10/15 09:56	08/11/15 10:07	
Arsenic	7.2		1.0	0.37	ug/L		08/10/15 09:56	08/11/15 10:07	1
Barium	640		2.0	0.14	ug/L		08/10/15 09:56	08/11/15 10:07	1
Beryllium	2.3		0.40	0.15	ug/L		08/10/15 09:56	08/11/15 10:07	1
Cadmium	0.19		0.10	0.043	ug/L		08/10/15 09:56	08/11/15 10:07	1
Chromium	22		2.0	1.0	ug/L		08/10/15 09:56	08/11/15 10:07	1
Cobalt	17		0.40	0.12	ug/L		08/10/15 09:56	08/11/15 10:07	1
Copper	36		1.0	0.50	ug/L		08/10/15 09:56	08/11/15 10:07	1
Lead	32		0.30	0.060	ug/L		08/10/15 09:56	08/11/15 10:07	1
Manganese	810		2.5	1.2	ug/L		08/10/15 09:56	08/11/15 10:07	1
Nickel	22		1.0	0.40	ug/L		08/10/15 09:56	08/11/15 10:07	1
Selenium	1.3	J	2.0	0.58	ug/L		08/10/15 09:56	08/11/15 10:07	1
Silver	0.12	J	1.0	0.10	ug/L		08/10/15 09:56	08/11/15 10:07	1
Thallium	0.43		0.20	0.10	ug/L	8.7	08/10/15 09:56	08/11/15 10:07	1.
Vanadium	50		1.0	0.30	ug/L		08/10/15 09:56	08/11/15 10:07	. 1
Zinc	100	<b></b>	20	2.8	ug/L		08/10/15 09:56	08/11/15 10:07	
Molybdenum	1.2	J	1.0	0.45	ug/L		08/10/15 09:56	08/11/15 10:07	1

Analyte	Result (	Qualifier	RL	MDL Unit	D Prepared	Analyzed	Dil Fac
Antimony, Dissolved	0.40 (	J U J	1.0	0.40 ug/L	08/10/15 09:56 (	)8/11/15 11:24	1
Arsenic, Dissolved	0.84	J	1.0	0.37 ug/L	08/10/15 09:56 (	)8/11/15 11:24	1
Barium, Dissolved	68		2.0	0.14 ug/L	08/10/15 09:56	)8/11/15 11:24	1
Beryllium, Dissolved	0.15 \	J.	0.40	0.15 ug/L	08/10/15 09:56 (	)8/11/15 11:24	1
Cadmium, Dissolved	0.043 (	<b>J</b>	0.10	0.043 ug/L	08/10/15 09:56 (	)8/11/15 11:24	1
Chromium, Dissolved	1.0 \	J	2.0	1.0 ug/L	08/10/15 09:56	)8/11/15 11:24	1
Cobalt, Dissolved	0.29 .	J	0.40	0.12 ug/L	08/10/15 09:56 (	)8/11/15 11:24	1
Copper, Dissolved	2.1		1.0	0.50 ug/L	08/10/15 09:56 (	)8/11/15 11:24	1
Lead, Dissolved	0.51		0.30	. 0.060 ug/L	08/10/15 09:56	)8/11/15 11:24	1
Manganese, Dissolved	13		2.5	1.2 ug/L	08/10/15 09:56 (	)8/11/15 11:24	1
Molybdenum, Dissolved	1.6		1.0	0.45 ug/L	08/10/15 09:56 (	)8/11/15 11:24	1
Nickel, Dissolved	1.4	ower.	1.0	0.40 ug/L	08/10/15 09:56	)8/11/15 11:24	1

TestAmerica Savannah

8/11/2015

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Client: Weston Solutions, Inc.

Project/Site: Gold King Mine - Region 9

TestAmerica Job ID: 680-115416-1

Client Sample ID: SJSR-080815-11 Lab Sample ID: 680-115416-4

Date Collected: 08/08/15 19:34 Date Received: 08/10/15 07:45 Matrix: Water

						5030000
						- SERVING
	and in the second secon	isanji dinasmanini panjanji namanin nama	ona manarana manaran	representative in the second of the second o	tadonici/nonièlei/eninisias.comasien	*: ## / F
						1000000
						. (025556)
Dissolved (Continued)						ANSSESSE
nissolaca (nonminen)						

Method: 200.8 - Metals (ICP/MS) -		red (Contin Qualifier	ued) RL	MDL	Linit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	0.58	Management and Company of the Compan	2.0		ug/L	orner constant	08/10/15 09:56	08/11/15 11:24	1
Silver, Dissolved	0.10	U	1.0		ug/L		08/10/15 09:56	08/11/15 11:24	1
Thallium, Dissolved	0.10	U	0.20	0.10	ug/L		08/10/15 09:56	08/11/15 11:24	1
Vanadium, Dissolved	2.0		1.0	0.30	ug/L		08/10/15 09:56	08/11/15 11:24	1
Zinc, Dissolved	5.1	J J -	20	2.8	ug/L		08/10/15 09:56	08/11/15 11:24	1
Method: 2340B-2011 - Total Hardr	iess (as	CaCO3) b	v calculation	1					
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	250		3.3	3.3	mg/L	onennemipole , assure	enousemprocumines (constraint substantial and constraint substantial and co	08/10/15 15:41	1
Method: 245.1 - Mercury (CVAA)	To the second								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.080	Ü.	0.20	0.080	ug/L	Sanataninininini. muun	08/10/15 09:17	08/10/15 15:36	1
Method: 245.1 - Mercury (CVAA) -	Dissol	ved							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	0.080	U	0.20	0.080	ug/L	projektivovejskom ventise.	08/10/15 12:21	08/10/15 16:38	1
General Chemistry									
Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
para a sanakaka sanakaka dan separaka manaka kaka sanaka kahara kahara kahara kahara kahara kahara kahara kahar Pili	8.10	HF J		mondo de camada camada de c	SU	Accompany years		08/10/15 16:38	1
		- Tringle							

RL

5.0

33

10

RL Unit

5.0 mg/L

33 mg/L

10 mg/L

Result Qualifier

94

2600

290

4 DQ 15 8

Prepared

Analyzed

08/10/15 16:38

08/11/15 08:37

08/10/15 11:46

Dil Fac

TestAmerica Savannah

8/11/2015

Analyte

Alkalinity

**Total Suspended Solids** 

**Total Dissolved Solids** 

Client: Weston Solutions, Inc.

Project/Site: Gold King Mine - Region 9

TestAmerica Job ID: 680-115416-1

Lab Sample ID: 680-115416-5

Matrix: Water

Client Sample ID: 10-25\_20150807\_RS

Date Collected: 08/07/15 11:30 Date Received: 08/10/15 07:45

Analyte	Result	Qualifier RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	21000	200	24 ug/L	ilianimimini '-issai '-	08/10/15 09:56	08/10/15 15:45	1
Calcium	68000	500	25 ug/L		08/10/15 09:56	08/10/15 15:45	1
Iron	16000	50	17 ug/L		08/10/15 09:56	08/10/15 15:45	1
Magnesium	12000	500	33 ug/L		08/10/15 09:56	08/10/15 15:45	1
Potassium	6600	1000	17 ug/L		08/10/15 09:56	08/10/15 15:45	1
Sodium	25000	1000	480 ug/L		08/10/15 09:56	08/10/15 15:45	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	24	U	200	24	ug/L	institutionalmore improvi-	08/10/15 09:56	08/10/15 17:07	1
Calcium, Dissolved	56000		500	25	ug/L		08/10/15 09:56	08/10/15 17:07	1
Iron, Dissolved	17	U	50	17	ug/L		08/10/15 09:56	08/10/15 17:07	1
Potassium, Dissolved	2500		1000	17	ug/L		08/10/15 09:56	08/10/15 17:07	1
Magnesium, Dissolved	7300	and the second	500	33	ug/L		08/10/15 09:56	08/10/15 17:07	1
Sodium, Dissolved	23000	*	1000	480	ug/L		08/10/15 09:56	08/10/15 17:07	1

Method: 200.8 - N Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.40	UUJ	1.0	0.40	ug/L	mojoronjepjani, "Govera	08/10/15 09:56	08/11/15 10:11	1
Arsenic	3.7	1.00	1.0	0.37	ug/L		08/10/15 09:56	08/11/15 10:11	1
Barium	330		2.0	0.14	ug/L		08/10/15 09:56	08/11/15 10:11	1
Beryllium	0.93		0.40	0.15	ug/L		08/10/15 09:56	08/11/15 10:11	1
Cadmium	0.20		0.10	0.043	ug/L		08/10/15 09:56	08/11/15 10:11	1.
Chromium	11		2.0	1.0	ug/L		08/10/15 09:56	08/11/15 10:11	1
Cobalt	7.4		0.40	0.12	ug/L		08/10/15 09:56	08/11/15 10:11	1
Copper	17		1.0	0.50	ug/L		08/10/15 09:56	08/11/15 10:11	1
Lead	15		0.30	0.060	ug/L	× 1	08/10/15 09:56	08/11/15 10:11	1
Manganese	390		2.5	1.2	ug/L	14.00	08/10/15 09:56	08/11/15 10:11	1
Nickel	10		1.0	0.40	ug/L		08/10/15 09:56	08/11/15 10:11	1
Selenium	0.74	J	2.0	0.58	ug/L		08/10/15 09:56	08/11/15 10:11	1
Silver	0.10	U	1.0	0.10	ug/L		08/10/15 09:56	08/11/15 10:11	1
Thallium	0.18	J	0.20	0.10	ug/L		08/10/15 09:56	08/11/15 10:11	1
Vanadium	25		1.0	0.30	ug/L		08/10/15 09:56	08/11/15 10:11	1
Zinc	57	J	20	2.8	ug/L		08/10/15 09:56	08/11/15 10:11	1
Molybdenum	1.5		1.0		ug/L		08/10/15 09:56	08/11/15 10:11	1

Method: 200.8 - Metals (ICP Analyte	Result	Qualifier	RL.	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony, Dissolved	0.40	0 01	1.0	0.40	ug/L	ARREST STATE	08/10/15 09:56	08/11/15 11:28	1
Arsenic, Dissolved	0.56	J	1.0	0.37	ug/L		08/10/15 09:56	08/11/15 11:28	1
Barium, Dissolved	68		2.0	0.14	ug/L		08/10/15 09:56	08/11/15 11:28	1
Beryllium, Dissolved	0.15	U	0.40	0.15	ug/L		08/10/15 09:56	08/11/15 11:28	1
Cadmium, Dissolved	0.043	U	0.10	0.043	ug/L	1	08/10/15 09:56	08/11/15 11:28	. 1
Chromium, Dissolved	1.0	U	2.0	1.0	ug/L		08/10/15 09:56	08/11/15 11:28	. 1
Cobalt, Dissolved	0.96		0.40	0.12	ug/L	100	08/10/15 09:56	08/11/15 11:28	1
Copper, Dissolved	1.2		1.0	0.50	ug/L		08/10/15 09:56	08/11/15 11:28	1
Lead, Dissolved	0.093	J	0.30	0.060	ug/L		08/10/15 09:56	08/11/15 11:28	1
Manganese, Dissolved	3.3		2.5	1.2	ug/L		08/10/15 09:56	08/11/15 11:28	1
Molybdenum, Dissolved	1.5		1.0	0.45	ug/L		08/10/15 09:56	08/11/15 11:28	1
Nickel, Dissolved	1.0		1.0	0.40	ug/L		08/10/15 09:56	08/11/15 11:28	1

TestAmerica Savannah

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Client: Weston Solutions, Inc.

Project/Site: Gold King Mine - Region 9

TestAmerica Job ID: 680-115416-1

Client Sample ID: 10-25\_20150807\_RS

Date Collected: 08/07/15 11:30 Date Received: 08/10/15 07:45

Analyte

Analyte

Alkalinity

**Total Suspended Solids** 

**Total Dissolved Solids** 

рН

Lab Sample ID: 680-115416-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	0.58	Ū	2.0	0.58	ug/L	eshioyoo-boloks aleaser	08/10/15 09:56	08/11/15 11:28	1
Silver, Dissolved	0.10	U	1.0	0.10	ug/L		08/10/15 09:56	08/11/15 11:28	1
Thallium, Dissolved	0.10	U	0.20	0.10	ug/L		08/10/15 09:56	08/11/15 11:28	1
Vanadium, Dissolved	1.3		1.0	0.30	ug/L		08/10/15 09:56	08/11/15 11:28	1
Zinc, Dissolved	2.8	U UJ	20	2.8	ug/L		08/10/15 09:56	08/11/15 11:28	
Method: 2340B-2011 - Tota	l Hardness (as	CaCO3) by	calculation	ř			#. *		
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	220	insurfaceintinintentingupuntatuutaus."-see	3.3	3.3	mg/L	matatoriumme (moser).		08/10/15 15:45	***************************************
Method: 245.1 - Mercury (C	VAA)			42					
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Mercury	0.080	U.	0.20	0.080	ug/L	- Seminary Commercial	08/10/15 09:17	08/10/15 15:39	
Method: 245.1 - Mercury (C	VAA) - Dissolv	red						(. <u> </u>	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	0.080	Ü.	0.20	0.080	ug/L	mentantation in Section	08/10/15 12:21	08/10/15 16:41	***************************************
en in the first of the second					, No. of the Control				
General Chemistry									

NONE

RL

5.0

33

10

NONE Unit

SU

RL Unit

5.0 mg/L

33 mg/L

10 mg/L

Result Qualifier

8.18 HF J

Result Qualifier

110

1700

290

10 × 11-15

Prepared

Prepared

Analyzed

08/10/15 16:47

Analyzed

08/10/15 16:47

08/11/15 08:37

08/10/15 11:46

Dil Fac

Dil Fac

TestAmerica Savannah